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ABSTRACT

An experimental course was conducted to test three products that may be included in the Systematic Teacher Training Model being developed by the Stanford Center for Research and Development in Teaching Program on Teaching Effectiveness. The subjects were 14 intern teachers enrolled in the Stanford Secondary Teacher Education Program, the interns' curriculum and instruction professor, and their supervisor. The course consisted of a 6-hour self-observation training program, a 10-hour group process training curriculum, and a 12-hour communication skills workshop. Questionnaires soliciting feedback from the subjects on satisfaction with participation, clarity of instructions, clarity of text, usefulness of training in teaching, and instructiveness of training were administered at the end of each session. The subjects recorded their personal reactions to the training and descriptions of their attempts to apply the training in their teaching. Pretests and posttests were used to evaluate the effectiveness of parts of the self-observation training program and the communication skills workshop. The subjects' overall reaction to the training course was moderately favorable. No serious problems were encountered in the administration of the training products. Results indicate that the experimental course format is a useful and convenient method for obtaining trainee feedback on teacher training products. (Author)

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TEACHER SELF-IMPROVEMENT THROUGH TEACHER TRAINING PRODUCTS: AN EXPERIMENTAL COURSE

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Introductory Statement

The Center's mission is to improve teaching in American schools. Its work is carried out through five programs:

- Teaching Effectiveness
- The Environment for Teaching
- Teaching Students from Low-Income Areas
- Teaching and Linguistic Pluralism
- Exploratory and Related Studies

This report describes research performed by the Program on Teaching Effectiveness as part of an effort to develop a Systematic Teacher Training Model.

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Abstract

An experimental course was conducted to test three products that may be included in the Systematic Teacher Training Model being developed by the SCRDT Program on Teaching Effectiveness. The subjects were 14 intern teachers enrolled in the Stanford Secondary Teacher Education Program, the interns' curriculum and instruction professor, and their supervisor.

The course consisted of a six-hour Self-Observation Training Program, a ten-hour Group Process Training Curriculum, and a twelve-hour Communication Skills Workshop. The course met two afternoons per week for six weeks.

Questionnaires soliciting feedback from the subjects on satisfaction with participation, clarity of instructions, clarity of text, enjoyment of training, usefulness of training in teaching, and instructiveness of training were administered at the end of each session. The subjects maintained journals for recording personal reactions to the training and describing attempts to apply the training to their teaching. Pretests and posttests were used to evaluate the effectiveness of parts of the Self-Observation Training Program and the Communication Skills Workshop.

The subjects provided a number of useful suggestions for improving the training products. Their overall reaction to the experimental course was moderately favorable. No serious problems were encountered in the administration of the training products.

The results indicate that the experimental course format is a useful and convenient method for obtaining trainee feedback on teacher training products.

TEACHER SELF-IMPROVEMENT THROUGH TEACHER TRAINING PRODUCTS: AN EXPERIMENTAL COURSE

Christopher M. Clark, C. Gaylord Hendricks, George N. Sousa

This report describes an experimental course conducted at the Stanford Center for Research and Development in Teaching (SCRDT) during January and February 1973. The title of the course was "Teacher Self-Improvement through Teacher Training Products." This course was the first tryout of a preliminary version of part of the Systematic Teacher Training Model (STTM) being developed by the SCRDT Program on Teaching Effectiveness.[1] The participants were 14 intern teachers enrolled in the Stanford Secondary Teacher Education Program (STEP), a curriculum and instruction professor, and a graduate supervisor of the interns.[2] Of the interns, 12 were from the curriculum area of mathematics, one was from physical education, and one was from social studies. The curriculum and instruction professor for mathematics cosponsored the course and was largely responsible for the participation of the 12 mathematics interns. At the time of the course, the mathematics interns had completed two quarters of practice teaching in local schools. The social studies and physical education interns had completed one quarter of practice teaching. All participants were teaching half-time during the course.

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[1]The major goal of the Program on Teaching Effectiveness was originally labeled a "Model Teacher Training System" (see Snow, 1972). That terminology, however, frequently seemed to require an explanation that the term "model" was intended to connote not an "ideal" but rather a "prototype." The intended meaning seems to be better captured by the present terminology for the Program's goal--"Systematic Teacher Training Model." The term "systematic" implies an organization of integrated components, each designed to serve its function and to support other components. "Model" signifies an original type, form, or instance of the way in which teacher training products can be integrated into a system, rather than a perfect and finished system.

[2]Because of occasional absenteeism, all 16 trainees did not participate in every session of the course.

The content of the course was divided into three components. The first component was a six-hour Self-Observation Training Program designed to improve teachers' self-management skills. The second component was a Group Process Training Curriculum consisting of a series of exercises aimed at developing skill in group problem solving, group decision making, analyzing group strengths and weaknesses, and group maintenance. The third component was a Communication Skills Training Workshop aimed at improving teachers' skill in questioning, listening, and explaining.

There were three major purposes in conducting the course at this time. The first was to obtain participant opinions on the appropriateness and level of sophistication of the training materials for beginning teachers along with substantive and editorial suggestions for improving the materials. The second purpose was to check on the ease of difficulty of administering the training--i.e., the length of time required, the clarity of instructions, the expense, etc.--and to note ways in which the different training components could be integrated. The third purpose was to improve the teaching behavior of the trainees and to obtain anecdotal feedback from them concerning their attempts to implement in their practice teaching the principles, skills, and techniques dealt with in the course.

At the end of each training session a questionnaire was used to check trainee satisfaction, clarity of instructions, clarity of text, enjoyment, and predicted usefulness of the training. Figure 1 shows the mean post-session ratings for all sessions on these five variables. In addition, the participants maintained journals in which they recorded reactions to the training, suggestions for improvement, and instances in which they had attempted to employ some of the principles, skills, or techniques in their practice teaching. A detailed final questionnaire was used to solicit overall impressions of the course and recommendations for improvement.

The three components of the course are described below, and trainee reaction, opinions, and suggestions concerning the training are summarized.

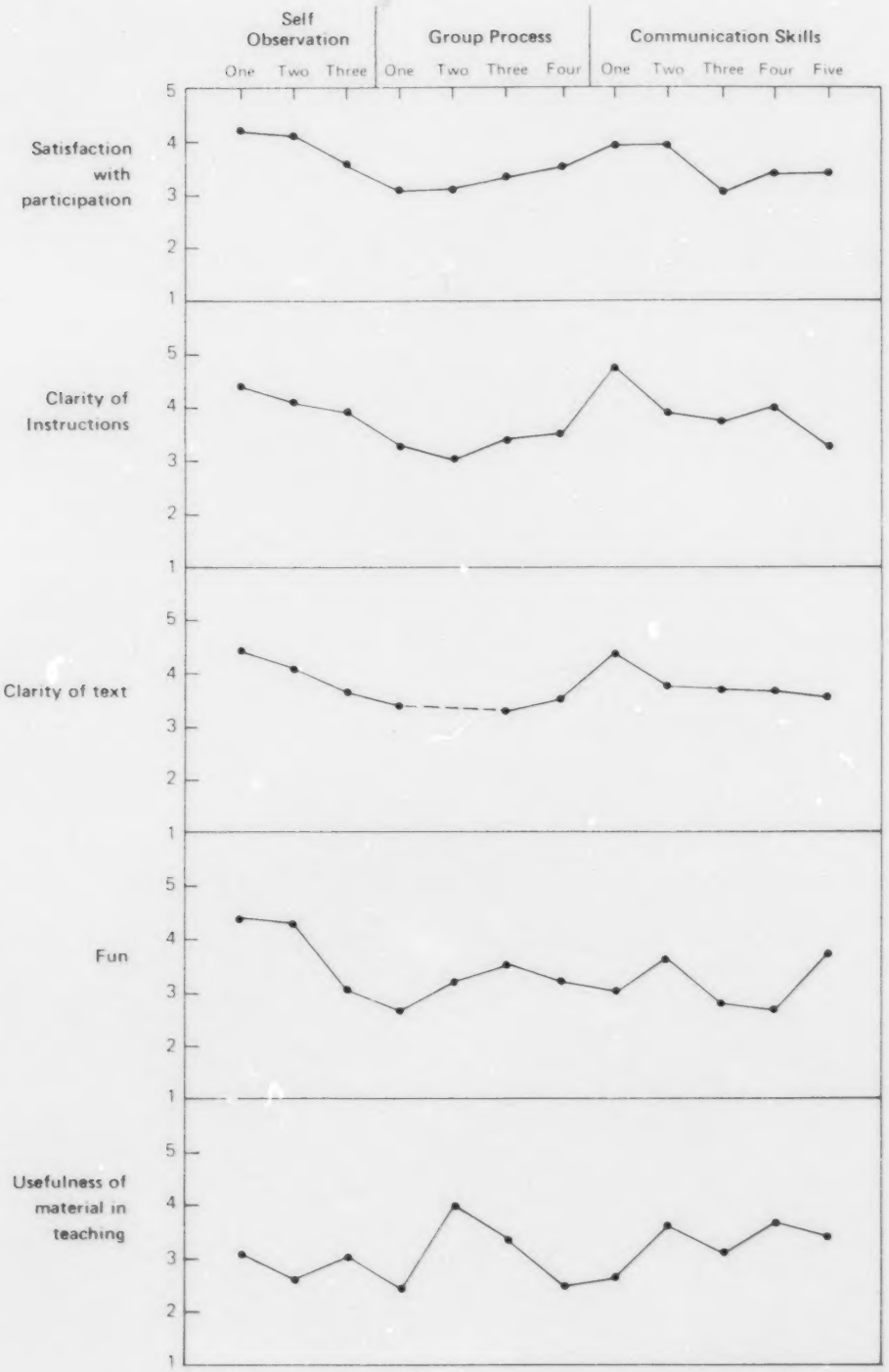

Fig. 1. Mean post-session evaluation ratings for all sessions. (Ratings were made on a five-point scale on which a rating of 5 was most positive.) No text material was used during Group Process Session Two.

The Self-Observation Training Program

The Self-Observation Training Program (SOTP) is in a workshop format; it consists of a training manual accompanied by videotape, audiotape, and role-playing exercises. The workshop was designed to be completed in three two-hour sessions. Homework assignments were given between sessions. The workshop was designed to be conducted by a group of trainees without assistance from a consultant, leader, or outside expert.

Components of the Program

A description of each component of the program follows.

1. Text. The training manual included text material designed to teach key concepts about the observation of behavior.

2. Video observations. Three videotapes of classroom teaching episodes were used to train the participants in observing and recording discrete units of behavior.

3. Emotions game. This exercise was designed to teach skills of observation of behavior in a live setting. Each participant acted out an emotion, such as "anger," while the others observed and recorded specific behaviors used by the actor (smiling, fist-clenching).

4. Comedies. Excerpts from two comedies were provided. The participants were instructed to perform the parts while "self-observing" some actions or words that occurred in their parts. This experience enabled the participants to observe themselves doing something that was printed on the page so that they could later check the accuracy of their observation.

5. Homework. After the first and second sessions the participants were instructed to choose and self-observe one of several kinds of behavior until the next session.

6. Wristcounter instructions. A videotape and text material instructed the participants in the use of a golfer's wristcounter that was to be used as a counting device for recording behavior.

7. Inkblot. Participants described an inkblot to others in the group while observing themselves to note each time they used the words "it," "they," or "them." The observers in the group recorded the occurrence of these words, making a check on the participants' accuracy possible.

8. Discussions. After most of the exercises, questions were used to initiate discussions of the points raised by the exercises.

9. Reprimand tape. A videotape showed a teacher being reprimanded by a gruff principal. This experience was designed to acquaint the participants with the self-observation of internal responses (in this case, anxiety).

10. Relaxation tape/thought watching. A 10-minute audiotape led the participants through several muscle relaxation exercises. This tape was also intended to stimulate self-observation of thoughts and contained several cues to the participants to observe their thoughts when they heard the cue.

11. Charades. This was a standard charades game except that the participants were instructed to observe some aspect of their own behavior while an opposing team also observed it. This exercise was designed to teach self-observation of nonverbal behavior.

12. Charting and Analyzing. The third session of the SOTP was a programmed instructional booklet on the rationale and procedures for charting and analyzing the trend of data.

13. Posttest. The SOTP contained its own posttest, designed to determine the extent to which the participants had acquired the skills and concepts taught. In addition to testing the skills of discrimination, counting, charting, and analysis, the posttest also asked questions on concepts of self-observation that were covered in the test sections of the SOTP.

The test had three parts. Part One was a videotape. The participants were asked to distinguish instances of questioning behavior (of which there were 16). This part was scored by comparing the participants' number of observations with the number of behaviors on the tape. Part Two contained three segments; the participants were asked to (a) plot 10 days of data on a graph, (b) perform a trend analysis of the data, and (c) perform a simple test of significance on the trend. Part Three consisted of nine questions on the text material.

Throughout the three sessions, the experimenter and an assistant observed the participants' actions and kept notes on all comments, confusions, criticisms, and questions that occurred.

Trainee Ratings

Table 1 shows the mean ratings for the three sessions on satisfaction with participation, clarity, fun, and usefulness in teaching.[3] Table 2 shows the "instructiveness" ratings for the individual exercises.

[3] The ratings shown in all the tables were made on a five-point scale on which a rating of 5 was the most positive.

TABLE 1

Post-session Evaluation of the Self-Observation Training Program

	Session One (N = 14)		Session Two (N = 13)		Session Three (N = 16)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Satisfaction with participation	4.2	.80	4.1	.76	3.6	.74
Clarity of instructions	4.4	.65	4.1	.95	3.9	.88
Clarity of text	4.4	.76	4.1	.90	3.7	.87
Fun	4.4	.76	4.3	.85	3.0	1.00
Usefulness of material in your teaching	3.1	.95	2.6	1.29	3.0	1.03

In general the interns rated the program favorably for clarity of text and clarity of instructions for exercises. They were satisfied with their participation in the program, and they considered it fun. They predicted that the program would be moderately useful in their teaching.

The session-by-session ratings of the "fun" scale indicated that the first two days of the program were regarded as very enjoyable (means of 4.4 and 4.3 respectively), but the third day was regarded as only moderately enjoyable (3.0). These means are understandable since the third session contains only the charting and analysis section and the posttest. The second day of the program, which contained the most enjoyable exercises, received the lowest rating for "usefulness." A tempting generalization is that material perceived as fun is less likely to be perceived as being useful, but these data only hint at this.

The ratings of usefulness were the lowest of all the ratings. The scores hovered around the midpoint of the scale, indicating that the interns regarded the material as moderately useful; but in comparison to the ratings on the other questions, usefulness was rated substantially lower. After the second session the experimenter asked several of the interns why they had rated the session only moderately useful. Their

consensus was that the burden was on them to figure out how to apply the self-observation techniques to their own teaching situation. The program needed, they said, more emphasis on how they could put self-observation to use to improve their lives in the classroom.

TABLE 2

Post-session Evaluation of Instructiveness of Individual Exercises

	Mean	S.D.
Session One (N = 14)		
Video Observations	3.7	.91
Guess the Emotions Game	3.4	1.01
Comedies	2.7	1.43
Session Two (N = 13)		
Homework	3.1	1.37
Inkblot	3.1	.64
Discussions	3.4	1.19
Reprimand	2.7	1.11
Relaxation/Thought Watching	2.6	1.19
Charades	3.0	1.15
Session Three (N = 16)		
Rationale for Analyzing Trend	3.6	1.02
Method for Analyzing Trend	3.4	1.36

Of the 11 separate training segments in the SOTP, three were rated by the interns as less than moderately instructive. As may be seen in Table 2, the three least instructive segments were the comedies, the teacher reprimand, and the relaxation exercise. These low ratings were not surprising since the experimenters had noted unexpected difficulties in their logs in all three exercises.

The comedies were much more trouble than they were worth. The interns had difficulty understanding the stage directions, which proved to

be entirely too long. The exercise, intended to be a humorous and pleasant introduction to self-observation, was viewed as simply tedious. The humor of the plays, both of which were Pulitzer prize winners, was obscured by the business of reading the parts and understanding the directions. It was clear that this approach was unsuccessful in doing what it was designed to do.

The teacher-reprimand videotape suffered from an inability of the interns to identify with the teacher being reprimanded. Thus, the experience largely failed in its attempt to acquaint the participants with observing feelings of anxiety.

The logs indicated that the problem with the relaxation tape resided in the nature of the relaxation instructions themselves. Some of the instructions, such as "stick your tongue out as far as it can go," while acceptable relaxation techniques, evoked embarrassment in the group setting. This embarrassment had not been foreseen. Also, the rationale for the exercise was apparently not developed adequately.

Posttest Results

The group of 16 persons who participated in the training program did very well on Part I of the posttest, which was designed to test skills in recognizing a target behavior. In the experimenters' estimation the tape provided a difficult exercise, since it contained 16 instances of the target behavior. The results indicated that the group was keen in observation of behavior.

In Part II, the results were less positive. Although 81 percent of the interns were able to plot the data on the chart provided, only 69 percent were able to derive a trend line correctly for the data using the technique taught. A subsection of the test in which the task was to decide whether the trend of the data was changing significantly was answered correctly by 94 percent of the participants, even though substantially fewer of the participants had drawn the trend line correctly.

Experimenters' Logs

Although the experimenters' logs were a valuable source of information regarding the participants' reactions to the SOTP, they consisted chiefly of brief notes which did not lend themselves to tabulation.

Instead they served to corroborate and explain scores on reaction forms and the posttest, and to aid in making decisions about revisions of the SOTP. For example, the low scores on the instructiveness of the comedies were explained by the comments in the logs on the confusion over the instructions and the lack of understanding of the rationale for the segment of the program.

Revisions of the Program

On the basis of information gathered through all three sources, changes were made in the SOTP. Minor changes included editorial and graphic revisions. Major changes included the following:

--Several additions to the discussion guides and text sections were made to provoke the next participants to think of self-observation in a classroom context.

--A new anxiety-inducing tape was made. The new tape did not require watching a teacher being reprimanded. Rather, it required the participants to stand in front of the video monitor and receive a direct reprimand from a principal on the tape.

--A new relaxation tape was prepared to achieve the original objectives without using embarrassing instructions.

--The comedies were deleted.

--Directions for the charting and analysis sections of the manual were revised and simplified.

The Group Process Training Curriculum

The second training component in the experimental course was the Group Process Training Curriculum (GPTC). Its purpose in the course was to introduce interns to group problem solving, group communication skills, and related concepts. The GPTC was designed to help those who work in schools to develop (a) skills useful in group problem solving, (b) understanding of the advantages and disadvantages of working in a group, and (c) interpretive and applicative skills useful in working in small groups. This experimental course used a version of the GPTC designed to fit into four class sessions. Total training time was ten hours. The training activities comprising this version of the GPTC are listed in Table 3.

TABLE 3

Group Process Training Curriculum Activities

Session	Training Activities
One	Staff introduces Group Process Training Staff introduces Videotape Recording (VTR) equipment Moon Survival Problem (small groups) Moon Survival Problem (large group) Fishbowl Technique Staff discusses "final" training design Staff and group negotiate final design Post-session Evaluations
Two	Brainstorming Force Field Analysis Milestone Charting Post-session Evaluations
Three	Giving Feedback Pooling Information Post-session Evaluations
Four	Group engages in "real-life" group problem solving Staff provides feedback to group regarding observations of behavior recorded on VTR during Session One Staff compares and contrasts behaviors observed during Sessions One and Four; group discussion Summary Evaluation a. Written evaluation b. Evaluative group discussion

Components of the Curriculum

Planning decisions were based on information about the intern group obtained through observations during the Self-Observation Training Program and interviews with the interns' curriculum and instruction teacher and their supervisor. The planning focused primarily on the need to develop problem-solving skills in the intern group; the decisions are reflected in Table 3, which shows that the majority of the activities focused upon problem solving; the other activity was a communications skills exercise (Giving Feedback).

The sequence of training activities in the design was based on three decisions. First, the training would be preceded by a nonthreatening and enjoyable exercise that would provide specific information to the staff about the group's problem-solving and decision-making performance. It was hoped that observations of the group's performance in this exercise would help in assessing the appropriateness of the planned training design to the interns' needs. Second, training in specific problem-solving skills useful in the classroom would be presented during Sessions One through Three. Third, the group would be given practice in solving a "real-life" problem in the last session.

The pretraining exercise planned for Session One consisted of the "Moon Survival Problem." This task was to enable the staff to watch the interns interact in two small groups as they attempted to decide on a rank order of importance for survival equipment to be used by a team of astronauts marooned on the moon. As a result of their observations during this activity, the staff would decide whether or not the original training plan would be carried out. The staff would demonstrate their own decision-making process by means of the Fishbowl Technique (described below). This same technique would later be used to permit both the staff and the interns to take part in planning the remaining three sessions.

Session Two was to concentrate on Brainstorming, Force Field Analysis, and Milestone Charting. "Brainstorming" is useful in generating a large number of alternatives and ideas related to a problem. The group was to use the technique on the topic of "Applications of self-observation and group process training to my teaching needs." Force Field Analysis is a

problem-solving program developed by the Northwest Regional Educational Laboratory, some procedures of which were adapted for this course. After interns had used Brainstorming to generate a number of teaching problems, they were to use Force Field Analysis in small special-interest groups to solve some of the problems. Milestone Charting is a planning tool useful in graphically representing the outcomes of problem solving or planning.

Session Three was to include a demonstration exercise showing the importance of feedback, a questionnaire and discussion guide showing how to give feedback in the classroom situation, and two problem-solving exercises: Pooling Information, intended to develop awareness of the importance of exchanging information in a group, and the Block Exercise, intended to demonstrate the use of heuristics in problem solving.

Session Four was to be devoted to practice in "real-life" problem solving. It was also intended to allow the group to practice some of the concepts and skills learned in this part of the course.

A feedback session was also planned to allow the staff to give feedback to the group about their problem-solving behavior in the first session by means of videotape segments, and to discuss differences between their group problem-solving behavior at the beginning of training and their performance on the "real-life" problem at the end of training.

Description of the Training

Session One. This session represented a marked departure from the format of the Self-Observation Training Program. In this session, the participants were seated in a large circle. Videotape recording equipment was set up to record group interaction during the various activities planned for the session.

After a brief introduction to the purposes of group process training and an explanation of the use of videotape recordings in research and training, the group was asked to engage in a decision-making exercise during which the staff would observe their decision-making processes. The large group was divided in half and given instructions for the Moon Survival Problem, for which they were allowed 30 minutes. Two staff members observed each group using schedules for the task-oriented,

interaction-oriented, and self-oriented behaviors of group members. After five minutes, each group was instructed to read a set of guidelines for reaching consensus. The guidelines were intended to structure the group's decision-making behavior by providing ground rules for discussion, and to foster a better group decision. One group was instructed simply to read the guidelines; in the other group, each person was instructed to read, discuss, and summarize one of the suggestions in the guidelines before continuing with the problem. (This difference was intended to determine whether differences in the groups' processes resulted from the differing instructions.) Both groups finished the task in the allotted time (30 minutes).

The two groups then merged into one large group. After discussing similarities and differences in their solutions, the whole group reached consensus on a single solution to the Moon Survival Problem.

Following a break, the Fishbowl Technique was described. This technique was intended to allow the group to observe the interaction among staff members as they discussed the group's decision-making behavior during the Moon Survival Problem, to analyze it, and to give feedback to the staff about their reactions. For this exercise the staff was seated in a small semicircle, with the interns seated in a large semicircle facing the staff. At least two rounds are required for the technique to be effective. In the first round, the inner group discusses a topic while the outer group observes. Then the two groups switch functions: the outer group discusses while the inner group observes. It had been planned that the staff would spend 10 minutes discussing their observations and recommendations; the class group would then spend 10 minutes discussing their reactions to the staff's observations, the suggested training design, and the possibility of receiving other training activities. The entire group would then make a single decision on the final training design.

What actually happened, however, was that the staff did not finish the discussion of its observations and the training design within the 10-minute period; they spent an additional 10 minutes in deliberation. At the end of the 20 minutes, the participants' expectation that they

would participate in the fishbowl exercise had not been met. Some had "tuned out" and were ready to leave, others apparently had become angry at not being able to participate, and others were confused about what was going on. The plan to negotiate a final training design failed, and the training plan was "accepted" not by negotiation but rather by default.

Session Two. As a result of the less-than-satisfactory outcomes in Session One, the planned agenda for Session Two was preceded by a discussion with the interns to clarify the purpose of the Fishbowl technique and to allow the participants an opportunity to voice reactions to the session. The interns stated that the purposes of the exercise were unclear, and that the procedure was confusing. The potential usefulness of the exercise in their teaching was not at all clear. Some said these problems also applied to other education courses.

The aim of the discussion session was to facilitate the expression of concerns, reinforce and clarify differing opinions, check the validity of the differences, and ensure equal participation. During the discussion, the survey technique was demonstrated and used.

After 45 minutes of discussion, Brainstorming was introduced. The technique was demonstrated by asking the group to generate a large number of possible uses for a wire coathanger. This exercise was well received and apparently enjoyed by the interns. After the group seemed comfortable with the technique, it was asked to brainstorm possible classroom applications of the techniques and skills learned so far in the course (i.e., in the Self-Observation Training and the first two Group Process Sessions). A number of imaginative ideas were generated and participants requested that a list of them be reproduced for everyone.

The discussion used up the time originally allotted for the Force Field Analysis (FFA) and Milestone Charting (MC) exercises. The FFA was rescheduled, and the MC was dropped from the training program.

Session Three. For Force Field Analysis (FFA), a programmed instruction booklet was adapted from a product developed at the Northwest Regional Educational Laboratory (Portland, Oregon). The FFA technique, which involves specifying and maximizing the forces that tend to help solve a problem while minimizing those forces working against problem solution,

was designed for individual use in problem solving. In this session, an attempt was made to apply the principles of FFA to a group problem-solving situation.

The trainer led the group in brainstorming a number of teaching problems that members had experienced during the year. A list of about 10 to 15 problem situations was generated. Two problems were selected from the list, and the group divided into two teams on the basis of interest. One team decided to work on the problem of sea gulls being attracted to a school playground by litter and rubbish left by students. The other team wanted to discover alternatives for dealing with student disciplinary problems in the classroom.

One team was observed to have a great deal of fun while working on its problem. The other team had difficulty in using the FFA technique, and seemed to resist following the programmed directions. It was noticed that the latter team encountered particular difficulty in defining its aim; after starting on the program, some of the team members apparently changed the focus of the problem. This change caused disagreement among the members. Some members also seemed impatient with the slowness and linearity of the process. The team did not isolate the cause of the difficulty, and did not finish the exercise.

Following a break, the group filled out a feedback rating scale; the scale was then used in a short discussion on giving feedback in group situations. Each item on the scale was used in a demonstration and a discussion of basic communication skills necessary for adequate feedback in groups. The skills were modeled and then participants were asked to identify the skill as it was role played.

The last activity was Pooling Information. It consisted of a mathematical word problem in which each participant received two out of 20 "pieces" of information which were possibly necessary, but insufficient, for solving the problem. The group was required to solve the problem by sharing or pooling the information each had. Because most of the trainees were mathematics teachers, the problem was solved very quickly. They immediately grasped the problem, and found that they needed only three of the 20 pieces of information to solve the problem. The

information-pooling process usually observed with non-mathematics-oriented participants was abbreviated considerably by their rapid problem analysis and solution.

Session Four. This session was originally intended to include a one-hour problem-solving session, followed by a feedback session, to compare Session One group problem-solving behavior with performance observed in this session. Instead, to first reinforce concepts presented in this part of the course, the trainer led a guided group discussion called "closure." This exercise consisted of reviewing and summarizing all the training activities presented to them in training. The trainer acted out some examples (as in charades), and the participants identified the behavior.

The group was then given feedback regarding their problem-solving behavior, based on analysis of videotapes made during Session One. Using a stimulated recall technique with selected videotape segments, the group first viewed each team's preinstruction behavior on the Moon Survival Problem. A prepared Observation/Discussion Guide was used to facilitate discussion of the group processes they were viewing.

Finally, after a break, the group was given a "real-life problem." They were instructed to use any technique or skill they had learned in approaching and solving the problem. The problem selected by the group's curriculum and instruction teacher involved planning a 10- to 15-minute presentation entitled, "Reflections of a Beginning Teacher on the Profession." This presentation was to be made to an audience of experienced teachers at a conference. The interns' problem-solving session was required merely to generate ideas for an outline of the task rather than to develop a completed product or plan of action. The session was videotaped and the group was allowed one hour to complete the task.

Trainee Ratings

Table 4 summarizes the Post-session Evaluation (PSE) ratings of the Group Process Training Curriculum. The interns' satisfaction with their own participation showed an increasing trend over the four sessions. The first session was rated lowest, possibly because of the

ineffectiveness of the way the Fishbowl exercise was conducted. It is possible that the high point in the last session may have been due to a "golden glow" phenomenon: the participants may have been satisfied that they had completed another section of the course. They may, of course, have felt genuine satisfaction with their own participation in the activities during the last session, but this explanation is less likely, since ratings of "fun" and "usefulness in teaching" decreased for the last session. A slightly positive trend is apparent in the mean ratings for clarity of instructions over the four sessions.

TABLE 4

Post-session Evaluation of the Group Process Training Curriculum Sessions

	Session One		Session Two		Session Three		Session Four	
	N = 14		N = 16		N = 14		N = 13	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Satisfaction with participation	3.1	.99	3.1	.81	3.3	1.07	3.5	1.13
Clarity of instructions	3.3	.82	3.0	.89	3.4	1.15	3.5	.97
Clarity of text[a]	3.4	.77	-	-	3.3	1.03	3.5	1.01
Fun	2.7	1.07	3.2	.83	3.5	.94	3.2	.83
Usefulness of material in your teaching	2.4	1.34	4.0	1.09	3.4	.93	2.5	1.13

[a]No text materials were used during Session Two.

The ratings of fun and usefulness in teaching were low in the first and last sessions relative to the middle two sessions. The similarity of the two response patterns suggests a possible relationship between enjoyment of the training experiences and perceived usefulness of the training. The average correlation between these two variables was .50.

Still another interpretation of these results (particularly with respect to the item on "fun") is that the activities of the first and last sessions were assessments of the group's performance under test-like conditions. In both sessions the participants knew that their problem-solving

behavior would be assessed. It is possible that their responses to these items reflects resistance to evaluation. Further, in the first and last sessions the participants were required to perform a task imposed by the training staff; since both tasks were for someone other than themselves, there may have been some resistance to them, especially since the tasks required them to collaborate on a "solution."

On the final PSE form the interns were asked to identify the activities from which they learned most and from which they learned least, and were invited to make comments and suggestions for improving this section of the course. Of the 16 trainees, 11 listed Brainstorming as the activity in which they learned most. The Fishbowl exercise was listed by 5 of 12 respondents as the activity in which they learned least. Another 4 felt that they learned least from the Force Field Analysis exercise. These responses are also borne out by ratings on the daily PSE forms. Table 5 summarizes intern ratings of the instructiveness of the exercises and activities. Each activity was rated on a five-point scale from Not Instructive to Very Instructive. The activities were rated at the end of the sessions in which they were presented. Inspection of Table 5 indicates that Brainstorming received the highest mean rating (4.1). The use of videotape feedback to the interns about their group behavior from Session One ("VTR feedback" in Table 5) received a mean rating of 3.8. The interns apparently found it instructive to observe and analyze their own behavior as a group. The Force Field Analysis exercise was rated third highest--moderately instructive (mean = 3.1). Two additional items in the final PSE questionnaire solicited free responses from the interns. One item requested suggestions for improving the sessions: "Briefly, how can the classroom sessions be improved for the next course?" Several responses indicated that the staff should explain definitions and objectives more clearly and provide more specific explanations of the various training activities and their implications for use in the classroom. One person suggested that the Fishbowl activity be omitted.

In response to the question "What can you do now (with regard to group process) differently than you could have done before this part of the course?," six trainees listed positive learning outcomes (e.g., "I am more

conscious of the part I take in groups"). Six persons listed no change or a negative outcome (e.g., "Keep my mouth shut" or "Not sure"). The remaining students did not respond to this item.

TABLE 5

Ratings of Instructiveness of Exercises of the Group Process Training Curriculum

	N	Mean	S.D.
Consensus decision making	14	3.0	1.04
Fishbowl Technique	14	2.1	1.35
Brainstorming	16	4.1	.93
Force Field Analysis	14	3.1	1.07
Giving Feedback	14	3.1	.77
Pooling Information	12	3.1	1.16
Closure	13	2.5	1.13
VTR feedback	13	3.8	.98
Practicing problem solving	11	2.9	.94

Revisions of the Training

Revisions of the Group Process Training Curriculum suggested by trainee feedback include the following:

--Provide an adequate overview of this section of the course, including adequate definitions of terms and objectives, and adhere to established time limits.

--If we wish to include teacher trainees in planning for training and to identify and assess their needs for training, they must be fully aware of what training is available for particular problems or needs in their classroom.

--Provide more time for practice and reinforcement of the skills presented in class.

--Employ pre- and posttraining tasks that are similar in order to assess the effects of group problem-solving training.

The Communication Skills Workshop

The assumption underlying the Communication Skills Workshop is that effective communication lies close to the heart of successful classroom interaction. If the teacher cannot listen effectively, responses to student questions will be either inefficient, requiring repetition and rephrasing, or altogether inappropriate. If the teacher cannot explain clearly, the students are likely to respond with confusion and blank stares. If the teacher cannot ask questions which provide the students with opportunities to think about the subject matter and relate it to other concepts, the learning experience becomes dry and impoverished.

The Communication Skills Workshop was a revision of an earlier training package (Clark, 1972) designed to improve the performance of teachers in questioning, listening, and explaining. The workshop used an audiotaped listening training program, a manual and a demonstration videotape for explaining training, and a manual and films (taken from a minicourse) to demonstrate effective questioning. The Communication Skills Workshop was conducted during 12 hours in the last five sessions of the course.

The sequence of events in the workshop was as follows. Session One, Listening Training, two hours. Session Two, Explaining Training, (Part One), three hours. Session Three, Explaining Training, (Part Two), three hours. Session Four, Questioning Training, three hours. Session Five, Questioning Practice, two hours.

Listening Training

The listening training portion of the course was developed to provide teachers with instructions, examples, and practice. Studies carried out using the Xerox Listening Program (Xerox, 1963) as a teacher training product showed that the Xerox Program was effective in improving teachers' listening ability (Lundgren, 1972; McKnight, 1969). Trainees' comments indicated, however, that the business-oriented content of the examples and practice in the Xerox version impaired its apparent relevance to an educational context. In response to this criticism, a new tape for listening training was developed using subject matter relevant

to classroom and school situations. It was predicted that trainees using this revised listening program would show improvement in listening achievement comparable to the gains made by users of the Xerox Program.

The listening program provided the trainee with instructions, examples, and practice in the following listening skills: (a) continuous analysis of what is being said; (b) organization of statements into main points and supporting reasons; (c) outlining by use of key words; (d) discrimination between relevancies and irrelevancies; (e) overcoming distraction. The tape consisted of 59 relatively brief monologues which the trainees were asked to outline mentally and remember. The trainees were then instructed to answer brief questions or provide an outline of the main points and supporting reasons presented in the monologue. Responses were made either orally or in a programmed response booklet that gave immediate feedback of the correct responses. The content of the monologues focused on issues interesting to teachers and relevant to classroom and school situations.

Parallel forms of a pretest and posttest were administered to the trainees to assess the effect of this training product on their listening behavior. The design was counterbalanced to control for test difficulty, i.e., half the trainees received Test A as a pretest and Test B as a posttest, while the remaining half received Test B as a pretest and Test A as a posttest.

The scores on Tests A and B could range from 0 to 11. Table 6 shows scores and mean scores on the pretest and the posttest. Using a one-tailed t test of differences between means of related measures, the improvement in mean scores between pre- and posttests was found to be significant ($t = 2.82$, $df = 11$, $p < .01$).

The effectiveness of the listening-training tape used in this course as a teacher training product compares favorably with that of the Xerox Listening Program. Lundgren (1972) reported that a sample of 54 Stanford teaching interns exposed to the Xerox listening training showed a mean score of 56 percent correct on the Xerox listening pretest and a mean score of 78 percent correct on the Xerox posttest, yielding a 22 percent gain after training. McKnight (1969) reported that another sample of 12 Stanford

teaching interns also exposed to the Xerox listening-training program showed a mean score of 45 percent correct on the Xerox listening pretest and a mean of 80 percent correct on the Xerox posttest, yielding a 35 percent gain after training. During the 1973 course, the interns showed a mean score of 67 percent correct on the Xerox listening pretest and a mean score of 82 percent correct on the Xerox posttest, yielding a 16 percent gain score. It may be seen that interns participating in this course had higher pretest scores than did those of the comparison samples reported by Lundgren and McKnight. A possible ceiling effect may be operating with the pretest and posttest produced by the Xerox Corporation.

TABLE 6

Pretest and Posttest Scores on the Listening-Training Program

Score	Number of Trainees (Pretest)	Number of Trainees (Posttest)
11	1	3
10		2
9		4
8	7	2
7	1	
6	1	
5		
4	2	1
N	12	12
Mean	7.33	9.08
S.D.	1.84	1.85

$t = 2.82$, $df = 11$, $p < .01$, one-tail

Explaining Training and Practice

The explaining training portion of the communication skills package was conducted with a condensed and revised version of a manual entitled

"How to Explain," which was developed in the Program on Teaching Effectiveness (Miltz, 1972). The training involves reading text material that describes important elements in effective explaining, suggests techniques for effective explaining, and provides examples of these techniques. Brief paper-and-pencil exercises are incorporated to provide the trainee with opportunities to use the principles and techniques discussed in the text. Each participant read the first half of the manual and performed the exercises. The participants were then paired for an explaining practice session, and a videotape demonstrating the practice procedures to be followed was shown. Each pair of participants tape recorded their practice explanations in order to criticize them later. The practice procedure was as follows:

1. The first participant read a provided question aloud.
2. The second participant responded with an explanation.
3. The taped explanation was replayed, and both participants criticized it, referring to an outline of the important elements of a good explanation.
4. The question and the explanation were repeated in an attempt to improve upon the first explanation.
5. The entire procedure was repeated using a new question and reversing the roles of the participants.

The second explaining-training session followed the pattern of the first; i.e., the trainees read through the second part of the manual, then performed paper-and-pencil exercises, and finally had an explaining practice session.

Questioning Training

The materials for the Questioning Training portion of the Communication Skills Package consisted of a manual entitled "Effective Questioning" and four 16mm films. The manual was an experimental adaptation of one written for an elementary-level Minicourse developed by the Far West Laboratory for Educational Research and Development (Borg, Kelley, & Langer, 1970); the films were part of this Minicourse. The workshop participants individually read through the manual. Part One of the manual contained descriptive material, examples of questions calling for a set of related facts, and examples of higher-order questions. Part Two described and illustrated the

probing techniques of prompting, seeking clarification, and refocusing. A short multiple-choice test at the end of each chapter helped the trainee review important points.

When all participants had completed Part I of the manual, two films were shown to the group. The first film described the skills involved in asking both questions calling for related facts and higher-order questions and showed examples of small discussion groups using these techniques. The second film illustrated these skills in a protocol format. The first half of this film showed a discussion session in which various questioning skills were being employed, and the viewer was asked to identify the skill being illustrated at several points during the film; the second half of the film was a rerun of the same discussion session with the questioning skills identified by captions as they occurred.

After viewing these two films, the workshop participants moved on to Part II of the manual. After all had finished the short quiz at the end of Part II, a pair of films similar to those described above was shown. These films concentrated on the skills of prompting, seeking further clarification, and refocusing.

Questioning Practice

The final session of the Communication Skills Workshop was devoted to practicing the skills and techniques discussed in the manual and illustrated by the films. The trainees had been instructed to prepare a five- to ten-minute presentation during which they would attempt to use questioning techniques with the class. Suggested lesson topics and text material were provided. Owing to time limitations, only 5 of 14 trainees actually made presentations. After each of the five presentations, a brief critique session on the use of questioning techniques was held.

Trainee Ratings

Table 7 summarizes the trainee ratings of the five sessions of the Communication Skills Workshop. In general, the trainees considered the instructions and materials used in this portion of the course to be clear. They were also generally satisfied with their participation in these sessions. The first Explaining session and the Questioning Practice session were rated above the midpoint of the scale for fun. The remaining three

TABLE 7

Post-session Evaluation of the Communication Skills Workshop

	Session One		Session Two		Session Three		Session Four		Session Five	
	Listening N = 13		Explaining I N = 11		Explaining II N = 15		Questioning N = 13		Ques. Practice N = 11	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Satisfaction with participation	3.9	1.32	3.9	.77	3.0	.96	3.4	1.09	3.4	.92
Clarity of instructions	4.8	.37	3.9	.83	3.8	.88	4.0	.86	3.2	.87
Clarity of text	4.4	.66	3.8	.87	3.7	.97	3.7	.85	3.5	.75
Fun	3.0	1.58	3.7	1.10	2.8	1.01	2.7	1.10	3.8	.87
Usefulness of material in your teaching	2.6	1.37	3.6	1.12	3.1	1.06	3.7	1.23	3.4	.92

sessions (Listening, Explaining Part Two, and Questioning Part One) were rated at or slightly below the midpoint of the scale for fun. The mean rating for Listening Training on usefulness in teaching was 2.6, the lowest rating for any session of the course. Usefulness ratings for the other four sessions were all above the midpoint of the scale.

In rating each element of the Communication Skills Workshop on instructiveness, the trainees indicated that they had learned most from the Questioning portion of the training and least from the Listening Training (see Table 8).

TABLE 8

Ratings of Instructiveness ot Elements of the Communication Skills Workshop

	Instructiveness		
	N	Mean	S.D.
Listening Training	11	2.4	1.21
Explaining Manual Part I	9	3.1	.60
Explaining Practice Session I	8	2.6	.52
Explaining Manual Part II	11	2.9	.83
Explaining Practice Session II	11	2.6	.92
Questioning Manual Part I	11	3.1	.83
Questioning Manual Part II	11	2.8	.98
Questioning Demonstration Films	11	1.9	.70
Questioning Practice Session	11	3.3	1.27

The trainees made a number of comments in their journals which are helpful in explaining their ratings. Comments concerning the Listening Training indicated that the training tape was perceived as too lengthy and that several of the trainees felt they had already mastered listening skills. One trainee, for whom English was a second language, found the Listening Training enjoyable and useful. The Explaining Training sessions were seen by some trainees as too elementary to be valuable to them. For both Explaining sessions, they felt, it would have been more desirable to incorporate opportunities for group discussion of the

principles of effective explanation. They would have preferred to work through Parts I and II of the Explaining Manual as homework exercises and devote class time to practice and discussion.

The Questioning Manual was mentioned as having good suggestions and as being useful both as a reference and as a training manual. It was seen as less useful to mathematics teachers than to teachers in other fields. The films used to illustrate various kinds of questions were described as "too simple and unrealistic." The trainees would have preferred additional time for discussion and treatment of questioning skills at a higher level than this training provided.

Revisions of the Workshop

Revisions of the Communication Skills Workshop suggested by the trainee feedback include the following:

--Condense the listening training tape to a length of about one hour.

--Assign Parts I and II of the Explaining Manual as homework.

--Provide opportunities for group discussion of the principles of listening, explaining, and questioning and their application to classroom situations.

--Replace the Questioning demonstration films with more realistic protocols.

--Schedule additional time for the Questioning Practice Session to permit all trainees to participate.

--Make editorial changes to increase the clarity of Part I of the Explaining Manual.

--Create additional exercises which deal with the explaining and questioning skills at a more advanced level.

Overall Course Ratings

At the end of the course, the trainees were asked to consider the entire course in retrospect and answer a number of questions about it. Most trainees responded that they had tried out some of the skills, techniques, or principles in their practice teaching. Self-observation, group processes, and questioning were most frequently mentioned. Trainees indicated that they would be interested in studying the skills of questioning and explaining in more depth and detail than had been presented during the course. Of 11 respondents, 5 indicated that they

would be interested in a refresher or follow-up session if such a session were offered at a later date. It was encouraging that 8 of the respondents recommended that this course be included in the STEP teacher training program for the coming year. Two others recommended that this course be offered next year "depending on revisions." Apparently the trainees found enough value in the experience to recommend it to their peers. In this final questionnaire, the trainees made comments on how the course as a whole might be improved:

> --"Some really good ideas and techniques were presented. The presentation needs to be more cohesive and more applicable to real teaching situations."
>
> --"The course needs a practice session in which all the skills presented are pulled together and used."
>
> --"I really had to stretch things to make them applicable to mathematics teaching."
>
> --"Most of the techniques we talked about were those that most people would do naturally. Why spend so much time on the obvious?"
>
> --"The Self-Observation sessions were the only fun sessions. In other parts of the course the pace was too slow. A more varied format in the Communication Skills Workshop would make it more interesting."
>
> --"There was not enough time spent on applying these skills to actual classroom situations."

Conclusions and Implications

The administration of the course achieved several objectives. It obtained valuable advice from the trainees on improving the clarity, appropriateness, and effectiveness of the products. It provided information on how well these products might work as part of a system, i.e., as an integrated set of training experiences. Finally, it indicated the extent to which intern teachers were able to apply the training experience.

Though admittedly it is only a crude prototype of a part of the Systematic Teacher Training Model, the course yielded a number of implications for design and evaluation of the STTM.

1. The trainees frequently expressed a need for explicitly linking the generic skills they were learning to their particular subject matter (the products used in the course were designed to teach skills generalizable across content areas). The implication for the Systematic Teacher Training Model is that it should be flexible enough to provide a variety of case studies, examples, and exercises suitable for science, mathematics, social studies, and English teachers.

2. Our experience with the course indicates that opportunities for the trainees to discuss the skills and principles, and their possible applications in teaching are desirable. Arrangements for such discussions, and supporting materials, should be built into individual products if the STTM is to be self-contained and self-administrable.

3. The interns felt that the teacher training products used in this course were useful as introductory-level experiences. The STTM should provide training materials for teaching skills at intermediate and advanced levels as well.

4. The interns enjoyed the variation in pace and mode of instruction they experienced in the Self-Observation Training Program. Similar variation should be designed into other materials that are candidates for eventual inclusion in the STTM.

5. The technique of administering a questionnaire immediately after each training session was found to be useful: students' recall of their experiences and reactions was fresh, and their suggestions could be incorporated in later sessions. This technique should be considered for use in field tests of more advanced versions of the STTM.

6. The work on the STTM should include field testing of the content and structure of the training on other kinds of trainees than the ones used here: for example, undergraduate preservice teachers and experienced in-service teachers.

Teacher training products such as the ones used in this course must be shown to be palatable as training experiences before more elaborate and expensive experimental designs for the evaluation of product potency are executed. If a teacher is "turned off" by a training experience, it is unreasonable to expect that the training will have a powerful positive effect on that teacher's effectiveness. The experimental course proved to be a useful context in which to test products for palatability, as a necessary step in the development of the Systematic Teacher Training Model.

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